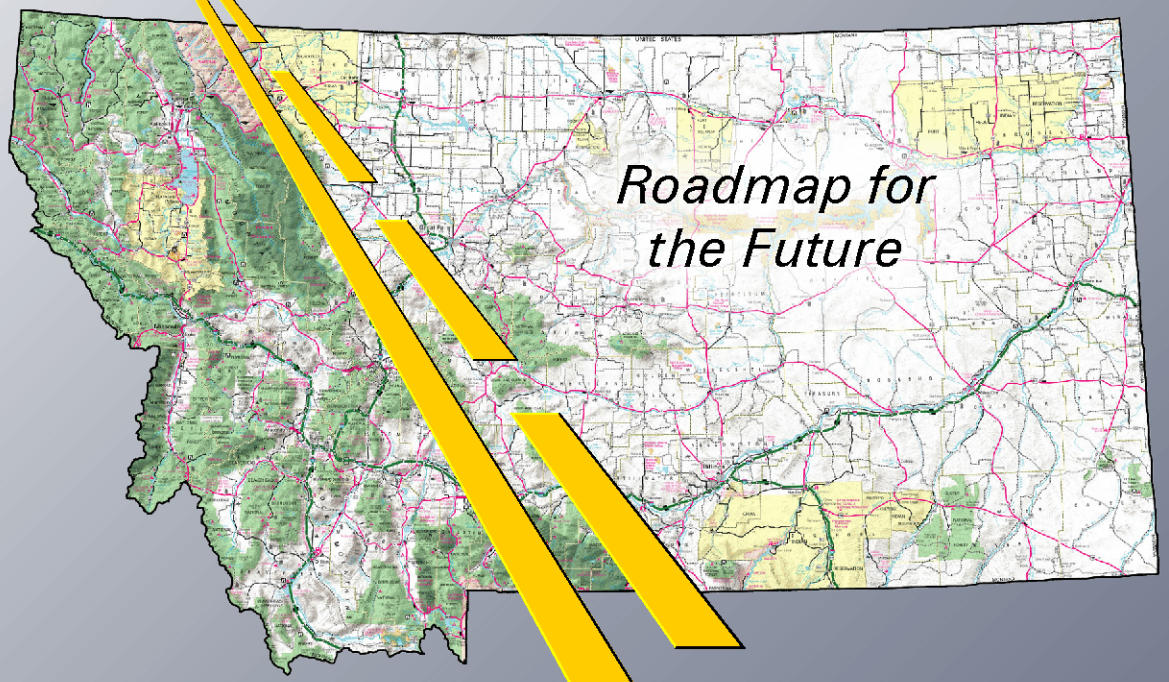
discovering MONTANA



STATE OF MONTANA

Strategic Plan for Information Technology

2006-2007

This is the second State of Montana Strategic Plan for Information Technology prepared under the authority of the Montana Information Technology Act of 2001. It is published biennially unless special interim plans become necessary.

Should you have any questions or comments regarding this plan, or desire additional copies, please contact:

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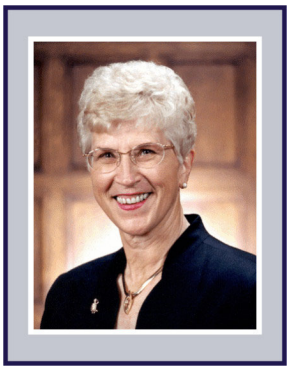
April 1, 2004

LETTER FROM THE GOVERNOR



Fellow Montanans,

Technology plays a crucial role in all our daily lives. This is especially true for Montana state government. Our lives are better for our willingness to embrace advances in technology. However, we fully realize the benefits of technology only when it is well managed.

I am pleased to present this State of Montana Strategic Plan for Information Technology as a roadmap for the management of information technology through the remainder of this decade.

This Plan is the result of countless hours of work by many of our brightest people. Many dedicated advisory groups comprised of legislators, agency directors, local government officials and private citizens have contributed to its success. It will guide us along the often-confusing path of effective information technology use and management. The Plan's guiding principles act as a beacon, leading us toward better government. We all are interested in having government that is focused on meeting the needs of our citizens. While computers often save us valuable time and provide useful information, we should automate only when it makes good sense to do so, not just because we have the technology available. We look forward to increasing the use of the Internet to bring Montana state government into our homes and business. "E-Government" allows our citizens to do much of their state government business online rather than standing in line. We will rely on our trusted partners in the private sector as well as the Federal and local governments to assist us as we strive to do information technology right.

I want to thank the many contributors who helped develop this important document. However, the most important person involved with this Plan is you, the reader. We need you to read this Plan and act on it. It is a call to action. It requires each and every one of us to carefully consider these guidelines and principles as we make decisions affecting Montana's future.

I invite you to join me as we journey along this road to the future!

Sincerely,

JUDY MARTZ
Governor

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CIO'S EXECUTIVE SUMMARY

WELCOME

Welcome to Montana's Strategic Plan for Information Technology 2006-2007. This document is divided into several sections. We encourage you to read the entire document to gain the full insight into our plans for the coming years. However, if you are not able to read the plan in its entirety, we hope this summary provides you with a clear view of the direction information technology (IT) should be going in Montana state government.

Following a short discussion on the reasons behind producing this plan, you will be presented with a discussion of the issues facing IT in Montana. Then we delve deeper and describe goals and strategies that address these issues. Therefore, you will notice that we often reinforce similar issues and themes. We hope this helps you more fully view the issues, goals and strategies that we see as most important.

This is our second strategic plan. If you compare this plan to our first plan you will see that much of the substance is the same. We have built upon our first plan, rather than starting over. Some strategic initiatives are now complete, while others are growing more urgent. The basic principles and objectives of the first Strategic Plan for IT have served us well.

Plans, strategies, and good intentions never produce the intended results unless the responsible parties take *action*. Success requires more than just verbal support and agreement with the objectives: only action brings good results. Montana's governor, legislature, agency executives, elected officials, program managers, business process owners, and IT managers must all heed the call to action.

MONTANA'S INFORMATION TECHNOLOGY VISION – ROADMAP FOR THE FUTURE

Without a vision of where we want to be in several years, any road will do. But we have a real vision of where we want to go, and that means mapping out the right road to travel and building a new road where one doesn't exist. Our vision and this plan represent our roadmap for the future.

Montana's government already runs on information technology. But the lack of money for IT projects threatens government. We need to squeeze our current technology spending and apply careful budgeting principles to new IT projects. Only those projects that have a sound business case, good financial return, manageable risk and measurable benefits should move forward.

Guiding Principles

Guiding principles are those values that define how we function. The goals and strategies of our Strategic Plan for IT are guided by the following principles:

- *Customer Service:* Information technology exists to provide the citizens, business community, and state employees with timely, easy access to information and services.
- *Business Leads:* Our business requirements will determine which solutions are best.
- *Best Practices:* We must use the best possible management methods.
- *e-Government:* The Internet is the future for delivery of government services.
- *Partnership:* The Information Technology Services Division (ITSD), state agencies, federal government, local governments and the private sector must work together.

Information Technology Issues

We face the same problems that all IT organizations face:

- Outsourcing versus using internal resources?
- Centralization or decentralization?
- How to manage data volumes that are growing at 50% annually?
- How to ensure adequate IT staff skills?

This plan does not propose a pre-determined solution, but rather a set of strategies that will move us to a position that is best for Montana.

Enterprise Perspective

In the past, our state agencies' independent structure required them to seek their own IT solutions. Their staffs designed and built their own networks, data centers, and applications. These systems met their individual agency needs, but from a government-wide perspective, these agency solutions were often not aligned with the enterprise direction. The process was fueled by a budget process that funds programs and departments, not enterprise-wide IT initiatives. This decentralization has resulted in some degree of duplication, incompatible systems, and contributed to a belief with some that the IT staff may be too large. For these reasons, we believe it is best to develop an IT structure that promotes an enterprise view.

Business Processes

IT systems are only as effective as the business processes they support. But business processes can become obsolete. They seldom get any attention, much less a critical review. Before new costly IT systems are built to support an old way of doing things, we should closely examine the actual business processes. We may be better off by doing things a bit differently.

GOALS & STRATEGIES

Customer Focus

We need to deploy government services using technology. We should use both traditional and electronic methods. Citizens and businesses alike expect and deserve to have government services delivered efficiently and effectively. Technologies such as the Internet can enable citizens to interact with government from their homes or places of work. The Internet can remove the barriers of location, time of day, language, and physical disability. We are dedicated to meeting our customers' expectations.

Do IT Right

Over the past few years we have made a large investment in IT. To protect this investment, we must use the best business and IT practices available. We will use business case analysis and look at the business process before we automate. We must use good project and contract management methods. We need to look at the total long-term cost of a new system, not just its initial price tag. Success can't be left to chance.

Move Forward Together

We'll work together to share IT resources to reduce costs and reduce duplication. We'll find ways to partner with other entities to find better ways for everyone.

The Right People

We are far more dependent upon people than technology. Replacing a failing computer may take a few days. Replacing a critical employee can take months. We must manage our people resource well. We must adequately train and motivate our employees. If we want to have *excellent* IT staff and management, we have to provide the tools they need.

Do IT Safely

Because we are dependent on IT, even small outages cause severe problems for the State of Montana. We need systems that are reliable and that will be there when we need them. These systems must maintain privacy. Doing IT safely includes statewide planning and exercises for disaster recovery. We will develop and enforce sound disaster planning and security policies and standards.

Fiscal Responsibility

We must get the most "bang for the buck." We will do this by spending on the most critical and useful projects. Major IT projects will be measured on criteria such as business processes, finances, customer service and innovation/growth.

STRATEGIC INITIATIVES

This Plan identifies six strategies that are so important that they have been labeled as *strategic initiatives*. These strategic initiatives are:

1. Enterprise Architecture
2. e-Government
3. Implementation of Best Practices
4. Business Process Management
5. Workforce Development
6. Public Safety Communications
7. Enterprise Content Management

Enterprise Architecture

Enterprise Architecture (EA) is a tool for managing change in an organization. EA provides a method for developing a blueprint of your processes. It shows the costs and effects of change. EA recognizes that employee knowledge is important, and shows the ways that various systems connect. It is a model to help come up with rational solutions for very complex problems.

The State of Montana is evaluating Enterprise Architecture frameworks as models for this initiative. This initiative is largely educational on what enterprise architecture is and how it can help the State of Montana. Although initial benefits will flow with the first blueprints, it will take several years to fully implement.

e-Government

The e-Government initiative is now several years old. It is delivering valuable services to state government by reducing the cost of government operations. e-Government allows the public to access services from their home or office whenever they want to. It promotes business efficiency. Businesses can search documents online. They can file tax/wage reports or workers' compensation claims online. The state's official website (*DiscoveringMontana.com*) is the cornerstone of this initiative. The primary objective is to expand web services if it brings better operations to state government and services to our citizens and businesses.

Implementation of Best Practices

The tools for managing IT efficiently have been developed and tested over the last 50 years. These methods are known as best practices, and they have repeatedly demonstrated their effectiveness. Implementation of best practices requires an investment of money and commitment. We believe that best practices should be applied in the following areas:

- Project management, including independent verification and validation (IV&V)
- System development, including testing and quality assurance
- Operations management and support
- Aligning IT investments with state business goals
- Continuous strategic planning

The application of best practices is a marathon, not a sprint. It will take years to acquire the knowledge and experience necessary to execute the most advanced practices well. Our strategies will include:

- Establishing a baseline inventory of the state's IT infrastructure
- Implementing a project management office
- Using reviews of IT procurements to ensure that business cases are well developed and align with agency business plans

Business Process Management

Business processes (the way we do things) can become as antiquated as computer systems. Unfortunately they never receive the amount of attention that computer systems get. Usually we only patch our business processes rather than look at the entire process. We often are told, "That's the way we have always done things." The Information Technology Managers Council (ITMC) identified the need for a complete business process review before starting any major IT systems work. We are in complete agreement. Workflow is a powerful tool used in the business process management arena. It uses electronic systems to manage and monitor business processes. It allows us to speed up the flow of work between individuals and/or departments. Not only do we free up state employees to perform other important work, but citizens and businesses also get far faster service. We have taken an enterprise approach to providing all agencies with workflow tools and systems. By funding the infrastructure at the enterprise level, imaging and workflow benefits are available to smaller agencies that could never afford or justify the large start-up costs.

Workforce Development

Within the next 5 years 60% of the state IT managers and 27% of the IT staff are eligible to retire. The workforce development strategic initiative is designed to address this glaring need. We must also find ways to train and maintain a pool of employees with those critical IT skills needed by state government.

Public Safety Communications

The state is challenged with dramatic new safety threats and the rural nature of our state. Montana must migrate to wireless 9-1-1 technologies, and modern, wide area, multi-agency public safety communication systems. The Governor's Homeland Security Task Force, the State Interoperability Executive Council and all public safety partners including law enforcement, fire protection, local government, utility and other public service providers will focus on detailed planning, interoperability and technology aggregation.

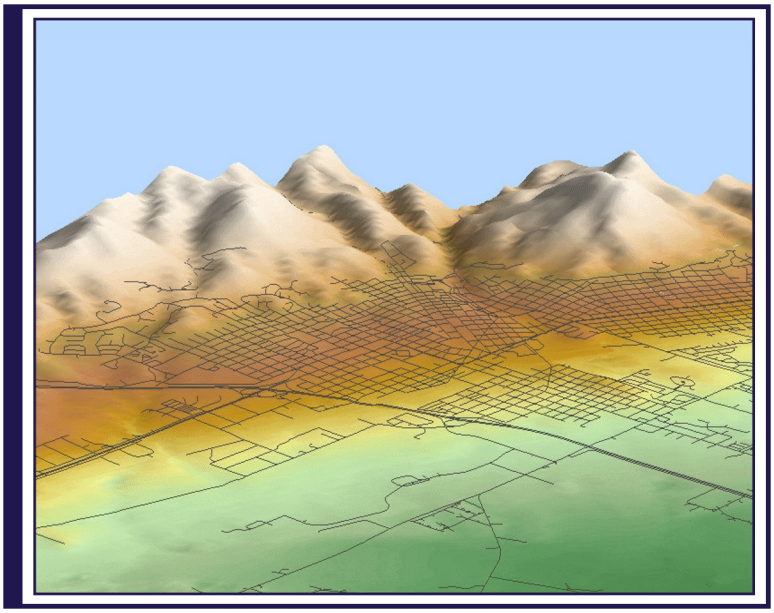
Enterprise Content Management

Enterprise Content is the term used to recognize that information exists in a wide variety of forms throughout the enterprise: hardcopy documents, computer reports, email, electronic documents, forms, graphic images, video, sound files, and web pages. Managing content involves security, storage, disposal and integrating the various forms of content to maximize benefit to the organization.

State customers are looking for Internet access to the documents, files and data supporting their applications, permits, legal processes and inquiries. Our first step will be a task force to identify our most critical needs and immediate risks, research other states/government approaches and strategies, and evaluate strategies that might be best for Montana.

I hope this summary provides a glimpse of our challenges, our path and the work that lies ahead. It will take commitment and action to make this plan succeed. Please read and consider your role in accomplishing these goals. This is not my IT plan; this is *our* roadmap for *our* IT future.

Brian Wolf
State of Montana CIO



3-Dimensional Visualization of Helena, Montana,
Incorporating Road Centerline & Elevation

These and other data are critical parts of the Montana Spatial Data Infrastructure and are used in many IT related activities.

Image produced by Montana Department of Administration, ITSD/Geographic Information Services Bureau

CALL TO ACTION

CALL TO ACTION

Plans, strategies and good intentions never produce the intended results unless the responsible parties take *action*. Success requires more than just verbal support and agreement with objectives; only action brings desired results. There must be a champion to lead the way for each initiative. There are many different people who have roles and responsibilities to make outcomes successful. As you read this document, determine the roles that you can take to ensure the success of the State of Montana Strategic Plan for Information Technology.

STEWARDSHIP

Stewardship is the careful management of something placed in one's care. Information technology is transforming government. This plan will require responsible and effective stewardship to implement the plan for that transformation. Stewardship requires that Plan participants be accountable for the well being of the government enterprise. Montana's governor, legislature, elected officials, agency directors, agency executives, program managers, business process owners, Chief Information Officer (CIO) and IT managers must all participate. All Plan participants must heed this *call to action* to fulfill their roles. Verbal support and acquiescence is not enough. The Plan requires that we demonstrate good stewardship of resources by achieving measurable results.

EVERYONE HAS A ROLE

The success of Montana's Strategic Plan for IT depends upon all stakeholders executing their assigned roles. The roles may include accountability, review and reporting, required input or simply some level of participation. The stakeholders include the Governor, elected officials, policy makers, the Office of Budget and Program Planning, agency directors, the state CIO, governance groups, business process owners, financial managers, information technology managers, local government and federal agencies.

Legislators and the Information Technology Board set the boundaries with policy and vision. Governance groups such as the Electronic Government Advisory Council, Enterprise Solutions Council, Information Technology Managers Council, Montana Geographic Information Council and the Statewide Interoperability Executive Council provide input to the direction of IT within Montana. The CIO and selected State executives are the champions that provide leadership and inspiration. Agencies and the Information Technology Services Division (ITSD) have the primary role of executing the Plan and delivering systems that the State, citizens and businesses require. Whatever your role, be an active participant. Spectators won't ensure the success of this Plan.

This following table lists some of the key responsibilities for Plan participants. The list of participants is not all-inclusive and the responsibilities are not exhaustive. *The initial task of all participants is a thorough review of Montana's Strategic Plan for Information Technology*.

PLAN PARTICIPANT	ROLES & RESPONSIBILITIES
Legislature	• Participate in IT governance groups • Develop a base knowledge of IT issues, agency IT strategies and major IT projects • Provide direction to the State IT community through legislation
Office of Budget and Program Planning	• Review IT budget proposals • Ensure IT proposals align with the Strategic Plan for IT
Governance Groups	• Develop a base knowledge of IT issues, agency IT strategies and major IT projects • Provide direction and policy to the State IT community
Agency Executives	• Participate or monitor the activities of the state IT governance groups • Sponsor and participate in developing the agency strategic IT plan • Ensure agency IT initiatives support the agency business and IT plans • Sponsor and support agency business process management efforts
Agency Program Managers	• Develop detailed knowledge of your business processes, strategies and IT needs • Participate in agency strategic business planning • Participate in developing the agency strategic IT plan • Ensure agency IT initiatives support the agency business and IT plans • Assist agency IT managers with the implementation of IT projects • Sponsor and support agency business process management efforts
Agency IT Managers (Including ITSD)	• Participate in agency strategic business planning • Lead the development of the agency strategic IT plan • Ensure agency IT initiatives support the agency business and IT plans • Implement agency IT projects which support the agency business and IT plans • Participate in the development and support of State IT policies, standards, and enterprise initiatives • Support and implement agency business process management

Information Technology Vision – Roadmap for the Future

Without a vision of where we want to be in several years, any road will do. But we have a real vision of where we want to go. That requires mapping out the right road to travel or building a new road where one doesn't exist. Our vision and this Strategic Plan for IT are our roadmap for the future.

The Need for Information Technology

Government runs on information technology. Many people can remember the days before computers, e-mail, the Internet, cell phones and fax machines. The world has changed tremendously in the last 20 years, and the rate of change is accelerating. People's expectations have increased, and businesses have been required to change their ways of operating or fail. Businesses have adopted technology as a means of increasing worker productivity and improving customer service delivery. The world may have been much simpler 20 or 30 years ago, but there is no going back. We must go forward.

Why We Must Go Forward

Our government customers are citizens and taxpayers who are no longer satisfied with older manual and mailed-based government services. They expect government to deliver services efficiently and affordably; and offer Internet and phone-based services.

Many citizens view state government as a single entity. They don't particularly care that one service is delivered by one agency, and another is delivered by a different agency. Citizens want and expect a "single face of government." Technology can provide that single face by allowing agencies to share business processes and information without regard to organizational boundaries and responsibilities. Technology can enable citizens to interact with government from their home or place of work, in addition to the established methods of mail, telephone or a personal visit. Technology can even remove the service barriers of location, time of day, language and physical disability. Government employees are becoming more dependent upon technology to provide fast, accurate information as they serve the public.

Optimizing Our IT Investment

In the current environment of tight budgets and limited resources, government policymakers face many challenges. They understand that IT investments can be an efficient tool for managing costs and improving services, but there is little funding available for the required IT investments.

We need to maximize the effectiveness of our limited funds by optimizing our IT operations and applying capital budgeting principles to IT projects. Only those projects that have the soundest business case, good financial return, manageable risk and measurable benefits should be undertaken. Within an agency, projects need to compete against other projects for approval. The standard of project approval should not be whether a project fits within an agency's budget, but whether a project's value exceeds the value of competing projects. The objective is to allocate IT dollars only to the most critical projects, those that deliver the maximum value and service. IT assets should be managed efficiently just like stocks, equipment, and buildings.

GUIDING PRINCIPLES

Guiding principles are the values that define how our technology organization will function. They provide the boundaries and framework for the goals, strategies, processes, and actions of Montana's IT organizations.

- *Customer Service:* Montana's information technology exists to provide the citizens, business community and state employees with timely, convenient access to information and services.
- *Business Leads:* Business needs drive IT solutions. Information technology is most effective when there is *alignment* between IT and business plans, processes and requirements.
- *Best Practices:* Montana's IT business will be managed using the best private and public business and technology methodologies. IT investments will be managed in an organized and cost effective manner maximizing commercial-off-the-shelf software (COTS) with minimal customization, replacing outdated systems and employing forward-looking planning cycles.
- *e-Government*: e-Government technology represents the future for delivery of government services. It provides the means for fast, high quality, comprehensive service. Business processes should be evaluated for redesign opportunities before automating them.
- *Partnership:* Successful IT undertakings require partnerships that provide a cooperative means of development, implementation and distribution. IT planning and the use of IT resources will be coordinated. IT systems should be developed in cooperation with federal, state and local governments and the private sector.

These guiding principles represent the foundation upon which this strategic plan is based. They will guide us as we identify the goals and strategies we will use to address our pressing issues.

BUSINESS DRIVES AT MDT

The Montana Department of Transportation's Information Technology Governance Board (ITGB) is an example of business driving IT strategic and tactical plans. The ITGB is composed of all Division and District Administrators and is chaired by the Department's Deputy Director. ITGB members have the following IT governance responsibilities:

- Develop and Promote the Department IT Corporate Vision
- Initiate and Prioritize MDT's IT Projects
- Recommend Funding Priorities for MDT's IT Projects
- Approve MDT's IT Policies, Procedures and Standards
- Approve MDT's IT Strategic Plan

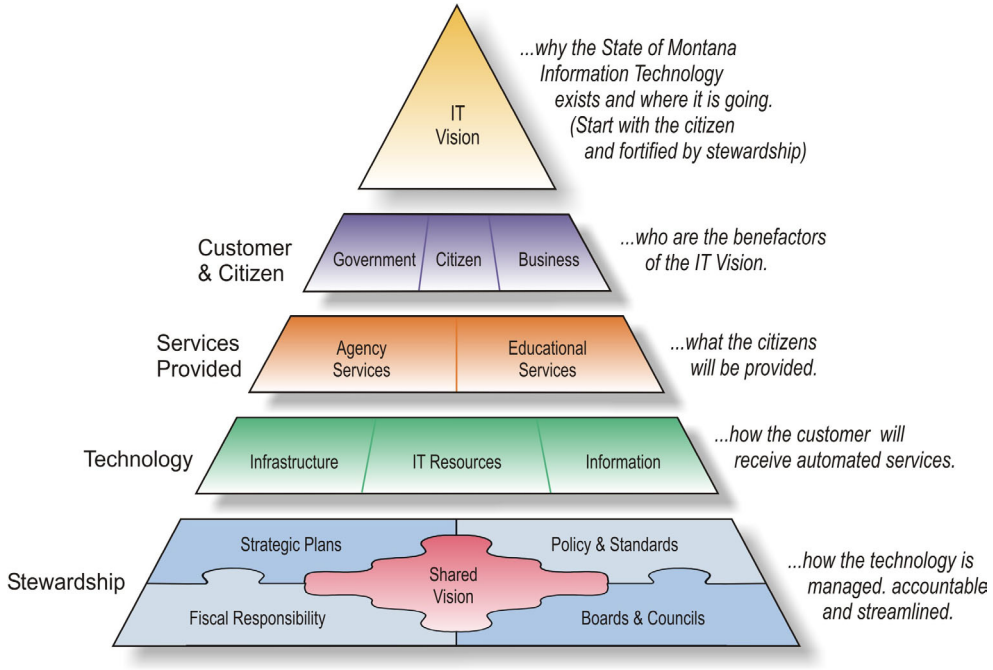
The IT governance structure within MDT has been well received throughout the agency. Jim Currie, MDT's Deputy Director and Chair of the ITGB, states "Information technology touches virtually every aspect of what we do in the Department of Transportation, from sophisticated management systems to electronic highway signs. Because of the pervasiveness of IT in my agency, the establishment of the ITGB has been critical in our successful compliance with the Montana Information Technology Act of 2001."

IT Strategic Plan Framework

The Montana IT Vision follows a framework that establishes the priorities and building blocks for information technology in the future. The IT Vision focuses on building a strong foundation through active stewardship based on:

- A sound strategic planning process
- Carefully crafted policies, standards and compliance monitoring
- Fiscal responsibility
- Guidance from the IT governing boards and councils

Beyond active stewardship, the next building block focuses on the technology itself: the infrastructure, the IT resources, and the information maintained within the IT systems. Other building blocks in the framework focus directly on the services to be provided and most importantly, the customers – the citizens, businesses, and other governments that receive services from Montana state government. These building blocks provide the framework, set direction, and describe where the State wants its IT resources to be in the future. Throughout the Strategic Plan for IT and this IT Vision, the focus is on the customer, and on providing improved services to the citizens of Montana.



Information Technology Issues

Information technology is a dynamic and constantly changing arena. New technologies are being introduced every month and innovative organizations are using these technologies to deliver services that were unimaginable five years ago. Unfortunately, IT also has a number of enduring issues that are not diminished or resolved with the introduction of new technology. Just as road construction crews must deal with the weather and soil conditions, IT must deal with its environmental issues. These issues are critical factors that affect all IT organizations and are not unique to Montana or government IT. These issues heavily influence our goals, strategic initiatives and actions.

Outsourcing vs. Use of Internal Resources

State agencies and ITSD will never have all of the staff and skills necessary to implement the technology and systems our business requirements demand. It is essential that the State utilize the private sector for people and knowledge. The downside to this public/private partnership is cost. Initial research shows that hiring private contractors is twice as expensive as using internal IT staff. Some will argue that a state employee, once hired, will be on the payroll forever. Why hire a permanent employee for a limited life project? But why contract for outside support for the entire 20-year life of an information system? Others will point out that the private sector is the only source of some specialized skills and is a cost effective way to acquire those skills. As an enterprise, we should strive for an appropriate balance in the use of external and internal resources, while remembering that we must be able to retain the intellectual capital required for on-going support of IT systems.

Centralization vs. Decentralization

What is the appropriate mix of centralization and decentralization in the state government IT environment? An organization with centralized systems will often be the most cost effective solution, but decentralized systems will often be more nimble and responsive to individual agencies. A federated solution that combines parts of both centralized and decentralized systems may be the best possible mix. Determining which components of the IT infrastructure should be centralized or decentralized is a judgment call that depends on a variety of factors.

Recommended for Centralization

- Applications that multiple agencies require, such as e-mail, messaging, Internet access, calendaring, scheduling, personnel, payroll, accounting, workflow and imaging.
- Data centers, servers and applications that require operator attention 24 hours a day for job scheduling, tape mounts and printer handling.
- Applications that require 24x7x365 availability and immediate recovery from failures. The costs of redundant servers and secure, controlled environments are more easily shared in a centralized structure.
- Large high-speed networks share traffic from multiple agencies and systems at a far smaller cost and with better performance than individual slower speed connections.
- Data that is common across agencies and applications (name, address, phone number, etc.) is a candidate for centralization. How much redundancy, duplicate effort and customer inconvenience is caused by a simple address change across all state agencies?

Not Recommended for Centralization

- Applications that require highly specialized industry knowledge.
- Applications that provide value and service to only a single agency.
- Systems and servers that must interface to unique agency hardware such as point-of-sale terminals and kiosks.
- Systems that have no economies of scale in hardware, software or staff.

DATA MANAGEMENT

Data volumes required to run the State's applications have been growing at 50% annually. Even though storage costs have dropped significantly each year, the State's demand for new storage far exceeds the drop in storage costs, so overall storage costs continue to go up. But simply storing data at a low cost doesn't solve the issue of making the data usable. Data must be readily accessible and accurate for it to be useful. Storing multiple copies of the same data, such as phone number and e-mail address, in different agency locations introduces the problem of ensuring the information is consistent across agencies. Citizens and businesses need to make multiple requests to multiple agencies to get their personal information updated. Requirements for data security, control and retention vary across different agencies. Data management is a complex issue with no simple solutions for a multi-faceted state organization.

PEOPLE MANAGEMENT

IT professionals are a resource, just as money and facilities are resources, and these professionals are at times scarce, expensive resources. The State faces a constant challenge to ensure there are enough people with the necessary talents to develop, implement, operate and manage the hundreds of State IT systems. Hiring, training, retaining and motivating IT staff are tasks which every agency faces. One key problem involves forecasting and acquiring the technical skills and training required to implement the newest technologies. The state also has a near term issue with the age distribution of its IT staff. Within the next 5 years, 27% of the state IT staff and 60% of the state IT managers are eligible for early retirement. Currently the state experiences a 7% annual turnover rate among its IT staff. Large-scale retirements or an expanding local economy could drain away some of our most knowledgeable and experienced IT staff. Doubling or tripling the turnover rate in any one year would have a huge negative impact. Projects would be delayed and the quality of service would decrease. We need to find ways to retain staff.

ENTERPRISE PERSPECTIVE

In the past, as individual agencies sought to meet their unique IT requirements, they became more independent. They designed and built their own data centers and applications; bought their own servers, software and security systems; and hired their own people to manage and maintain their growing IT infrastructures. From a government-wide, enterprise perspective, this growth was often not aligned with the enterprise direction. At times the process was encouraged, sometimes even required, by appropriations processes that tended to fund programs and departments, not cross-agency IT initiatives. Imagine the possible outcomes if two counties built roads without ever considering the other county's needs -- a road that ended at a county line or two roads that missed meeting by 20 feet at a county line. IT decentralization has sometimes resulted in redundant systems and applications, incompatible systems, and larger-than-necessary IT support organizations.

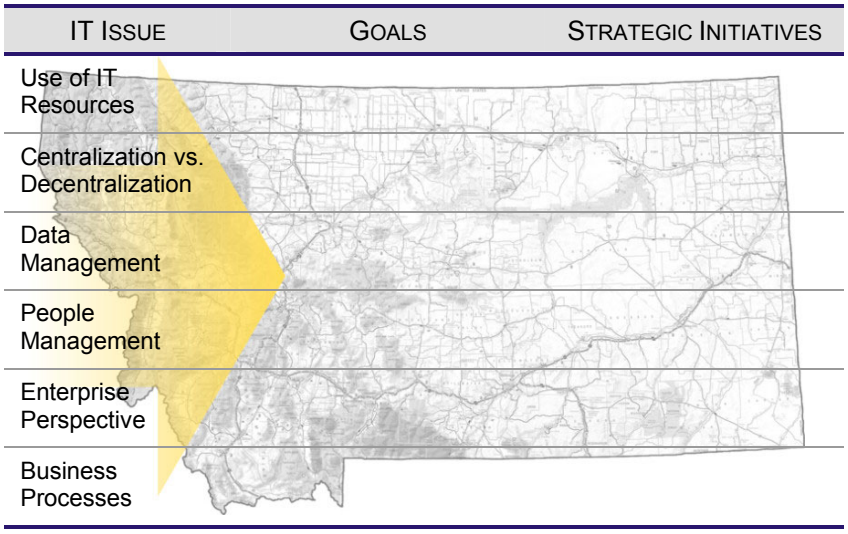
EXAMINATION OF BUSINESS PROCESSES

Information technology can provide new and improved ways of doing things. But business process requirements should drive the use of IT, not the other way around. Before large amounts of money are spent, either to build new systems or to replace existing systems, the business processes that the systems support should be examined.

Business processes get old, stale and obsolete, just like technology. Laws change, customers' needs change, the economy changes, and the technology also changes. Traditionally, we have just patched our business processes. It is human nature to want to continue to do things the way we've always done them. However, our resistance to change, along with a lack of understanding of best practices, is more often the reason for the failure of an IT project than the technology itself.

When it comes to planning for new IT systems, re-examination of business processes is a step that is often overlooked. Why? Well, it takes resources – time, people, and funding -- to conduct this examination properly, and these are resources that might be used towards implementing the new system. Businesses and state governments have discovered that resources spent up front to conduct an examination of business processes, before an IT project begins, are resources well spent. They have found that it is not a good investment of resources to automate existing, obsolete business processes. No matter how good the technology may be, if the business processes are antiquated, it is a poor investment.

The issues stated above were common themes that were discussed by the Information Technology Board (ITB) and the Information Technology Council (ITMC) in their strategic planning sessions. These issues represent the beginnings of our Roadmap. In the next section, we will discuss the goals and strategies we will use to confront these issues.



GOALS

The guiding principles of our State of Montana Strategic Plan for Information Technology have led to the identification and development of the following IT goals and strategies.

CUSTOMER FOCUS

Montana citizens are our customers, and they expect convenient and timely delivery of services. Citizens also expect government to deliver those services reliably, efficiently and affordably.

The state will aggressively deploy government services for the benefit of our customers in order to make state government more accessible and responsive to citizens, businesses and other government entities. This will be done through traditional as well as direct electronic methods such as web-based access and interactive voice response systems (IVR).

The State will assess the requirements for the reliability and availability of various services, recognizing that e-Government will allow services to be available around the clock. We will promote the awareness and availability of e-Government services among our customers; and we will guide the development of a common website "look and feel" for the enterprise.

Risks, Implications, Success Factors

- Automation of services through e-Government technology provides agencies with an excellent opportunity to deliver superior services to citizens and customers at reduced costs, but only if those business processes that the technology supports have not become obsolete. Before automating their business processes, agencies will need to review them to be sure they are still viable. If not, those processes should be redesigned before automating them.
- Many citizens view state government as a single entity. For this reason, e-Government services should have a look and feel that is consistent without regard to what kind of service it is or what agency is delivering the service. This is part of the concept of "one-stop" shopping.
- A citizen should be allowed to access all available state e-Government services by using a single sign-on.
- Citizens and customers must be made aware of the convenience of services available to them online. The State must aggressively market its services.
- The State will reassess which services should be made available around-the-clock. Increased availability of services means greater convenience to citizens, but it also requires greater infrastructure and support.

VISION OF THE FUTURE - JACK GETS SMART

Jack Smart owns and operates a small company that's in the business of environmental cleanup and abatement. Jack needs to renew his license with the Department of Environmental Quality, and he also needs to apply for a permit to perform asbestos abatement work at a state building in Billings, Montana. Jack dreads the prospect of having to take valuable time away from his work during the day to take care of these licensing and permitting requirements.

Fortunately, Jack learns that he can accomplish these tasks from home, at any time, by using his computer to access the State website. Late one Friday night, Jack is able to renew his license, apply for a permit for his asbestos abatement work and pay all required fees for these services. While connected to the state website, Jack also decides to get his hunting license and pay his state income taxes.

DO IT RIGHT

The State will use appropriate and disciplined project evaluation and management methods, and make fiscally responsible investments in IT resources in order to support agencies' mandates, missions and business processes.

IT projects represent tremendous investments of resources. Prior to any major IT investment, the State must use the appropriate degree of business process analysis to determine the best fit between the business needs and the technology solution proposed. The State will use standard language and contract management processes to enable agencies to effectively and consistently manage IT contracts. The State's investments will be safeguarded by use of sound project management methods, diligent project oversight, thorough quality assurance and performance measurement.

Using cost efficiencies as a guiding principle, the State will assess the appropriate balance between centralized and decentralized services. We will use IT standards to support a consistent enterprise approach to IT. The State will systematically perform research and evaluation on information technologies that have the greatest potential to work best in our unique environment. We will create centers of IT excellence in specific technical disciplines that will provide expertise to be shared by all. We will build this expertise by utilizing specialized and highly trained IT professional contractors, through memberships in professional organizations, and by making advanced technical and management training available locally.

MOVE FORWARD TOGETHER

In order to optimize the State investment in information technology, we will leverage the use of our IT resources and organize for effective response to changing business process requirements. We will strive to create additional value by managing IT assets like any other class of assets. We will promote the sharing of IT resources, including data, information, expertise and technology among agencies in order to achieve economies-of-scale and minimize unwarranted duplication. We will identify and pursue opportunities for collaborating with a wide array of other entities, including the federal government; Montana counties, cities, towns, school districts, and tribes; other states; and private entities, with an eye to developing ways to improve service delivery.

Success Factors

Just as a new Interstate highway interchange requires the cooperation of federal, state and local agencies, State agencies must cooperate on IT systems and projects. All State agencies must strive to eliminate the agency-only view where projects and systems never consider the effects outside the agency. This will require us to identify the barriers to cooperation among the entities within the enterprise in the use of information technology and develop plans to remove them.

Enabling the efficient sharing of information and resources among agencies and other government entities will require the State to use standardized tools and methods. This enterprise perspective will require a high degree of communication and cooperation among these organizations. The enterprise perspective includes:

- Staying current with State IT standards by phasing out obsolete technologies
- Proposing, developing, and adhering to State standard hardware, software, and policies
- Sharing resources among agencies
- Developing the capability for unique, secure access (i.e. single sign-on)
- Sharing project and technology experiences and techniques

The state will use its power as an *anchor tenant* to extend technologies to organizations that could not otherwise participate. By leveraging our IT investments we will enable small state and local government entities access to technologies they could not afford individually.

MOVING FORWARD TOGETHER WITH SUMMITNET II

SummitNet II (State and Universities of Montana Multi-protocol Network) is the State data communications network and a prime example of moving forward together. State agencies, libraries, local government, K-12 schools, tribal colleges and universities all have access to SummitNet II. SummitNet II provides data communications connectivity to over 530 office and campus locations throughout Montana. SummitNet II is the State's next generation telecommunications network. SummitNet II delivers high quality service through one network that can accommodate growth and expansion, greater bandwidth to remote locations and cost efficiencies through shared resources.

THE RIGHT PEOPLE

Information technology is far more dependent upon people than technology. It is people who design, build, and maintain the systems the State uses to run its daily business. Managing our people assets to obtain the maximum efficiency and productivity is our goal. Training, motivating and actively managing our people assets is essential. A recipe for failure is to believe that we can deliver on our ambitious goals while ignoring people development. Our strategy is to develop *excellent* IT staff and managers, and ensure they have the tools to deliver our vision. Winning teams are not accidents.

Sharing Knowledge

The State will promote consulting relationships, bringing together IT expertise from within existing IT groups. These groups will share project information, discuss lessons learned from past and current projects and promote the use of best practices.

Training and Education

The State will ensure appropriate training is available for IT professionals responsible for managing our IT assets. The State will also promote appropriate training throughout the enterprise for policy and program level professionals.

Career Development

The State realizes that it is essential to manage IT professionals as a strategic resource. We will strive to enhance our IT career ladder and develop strategies to ensure professional growth of IT staff and minimize IT employee turnover. We will develop strategies around standard skill sets, compensation, tuition reimbursement, internships, performance criteria, and mentoring programs.

DO IT SAFELY

IT systems have become so pervasive that it is almost impossible to conduct State business for any length of time without them. A computer virus outbreak in the fall of 2003 impacted our business delivery for more than 24 hours. Our virus defense systems intercepted 93 viruses in 1997, and in 2003 they intercepted 610,847 viruses. Attempts to access the State's network climbed to over 4 million per month in 2003. National statistics show that over 35% of Internet e-mail is Spam or unsolicited commercial e-mail. These are just some of the trends in the area of security that the State must be diligent about addressing.

Our citizens, businesses and state agencies demand and deserve the best service that we can provide. This service includes confidentiality, integrity, availability and reliability of computer systems. Customers must be assured that information they provide to the State is kept confidential. Security

mechanisms need to be in place to ensure that data cannot be changed or damaged by unauthorized access. Availability relies on many elements of security including virus protection and disaster recovery efforts. Outages can be avoided by implementing and enforcing security policies and standards. For these reasons we have a primary goal of ensuring our computer systems are safe. Doing IT safely includes:

- Risk mitigation, gap analysis and component redundancy for mission critical systems
- Enterprise-wide disaster recovery and business continuity planning and exercises
- Organizing business continuity and agency security teams
- Developing, updating, and enforcing security policies and standards

Our highways are made safe with signals, warning signs, and striping. We need to take similar safety precautions with our IT systems that we use and trust daily.

FISCAL RESPONSIBILITY

Money for IT projects is a scarce commodity that should be managed closely. Our responsibility to the taxpayers demands that fiscal due diligence is constant and appropriate to the size of the proposed expenditure. The longest, most expensive and highest risk IT projects require the most detailed financial reviews.

Limited funds produce the greatest results when allocated to the most critical and beneficial projects. It is far easier to prevent a dollar from being spent on a non-essential project than it is to raise a dollar of additional tax revenue. We should start by asking, "Is this project fully justified?" and save our scarce resources for the right project.

The primary goal is to incorporate sound fiscal evaluations and processes into the business case and technical evaluations of IT projects. IT projects should not be judged by technical merits alone. An IT technical success that fails on financial or business criteria is really a waste of time, money and resources. Our strategy to incorporate a financial perspective will use the following components.

PROJECT REVIEWS DONE RIGHT

At the beginning of fiscal 2004, the Montana Department of Transportation's (MDT) IT Governance Board (ITGB) began implementing a new IT planning process designed to efficiently allocate MDT's limited IT resources. The first step was to solicit IT project nominations from throughout the agency. IT projects could include new application development, major enhancements to existing applications, IT contracted services, IT studies, IT pilot projects, equipment purchases in excess of $15,000, and other large IT efforts.

Next, ITGB appointed a committee to review and rank all the nominated projects against an established ranking criteria. This committee is made up of business process managers from throughout the agency, not by members from the Information Services Division. This process required the committee members to take a departmental view of the agency's IT needs, not just a limited view from their own business process need.

The prioritized projects were then submitted to the ITGB for review. After the review, MDT's Information Services Division began working with the business process owners to develop business cases for the top ranked projects. Only after the ITGB approved the business case did the project get incorporated into the MDT IT Plan.

MDT's IT planning process has been eagerly accepted by managers from throughout the agency. In the past, MDT had no clearly defined process for getting IT projects into development. But now, management clearly understands the process and better understands the entire agency's IT requirements. Drew Livesay, from MDT's Motor Carrier Services Division, stated, "This process is fair and equitable. For the first time, MDT has a definitive process for compiling, assessing, and approving the disparate IT needs from throughout the agency".

Reviews of Proposed IT Projects

Major IT projects will be measured on criteria such as business processes, finances, customer service and innovation/growth. Alternative approaches will be part of the analysis and the financial component will cover more than a simple total of vendor expenditures.

Also, as part of the process of project review, opportunities for sharing IT resources with other State agencies (skill sets, processes, hardware, software applications, etc.) will be explored. The primary objective here is to avoid redundant systems and redundant support requirements. Project managers guiding the major State IT projects will be asked to provide monthly status reports that summarize the actual vs. planned expenditures and the actual vs. planned tasks or deliverables. These reports are part of normal best practices in project management.

Major IT projects should have post implementation reviews that summarize the project expenditures to date, the projected expenditures for the system's life cycle, and an evaluation of the expected benefits based on the functions delivered.

The objective over the next few years will be to apply appropriately sized reviews to medium and small IT projects. The need for sound business and financial decisions is not limited to major projects.

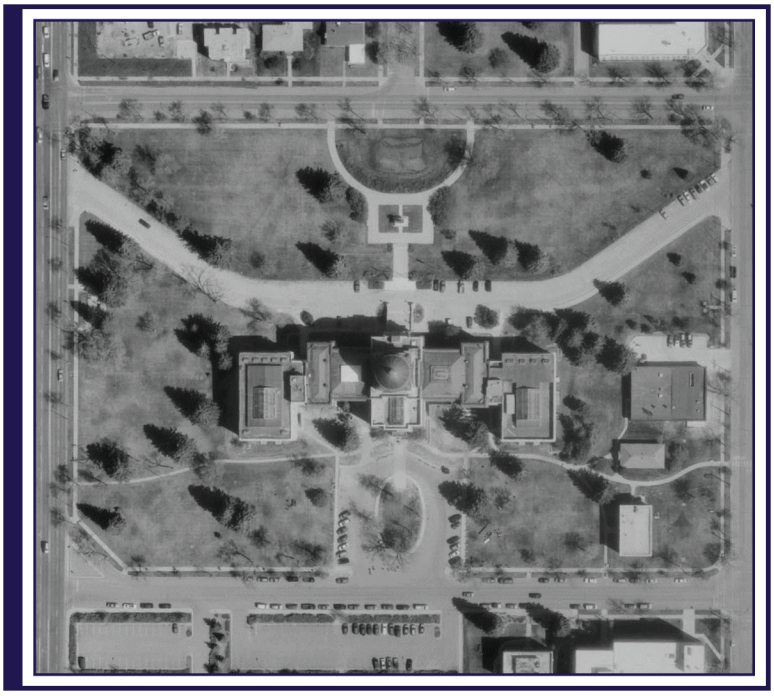
Centralization/Decentralization Reviews

Agencies and the Policy and Planning Services Bureau of ITSD will be responsible for evaluating new IT initiatives on the basis of centralization/ decentralization. Evaluation criteria include but are not limited to:

- Efficiencies and effectiveness of both approaches including application requirements for 24x7x365 availability or operator attention; and financial costs/benefits from alternative system locations
- Federal and State statutory considerations
- System functions common across agencies
- Alignment with the statewide IT strategic plan, agency IT strategic plans and agency business strategies

The goals and strategies just discussed complete a little more of the Roadmap.

IT Issue	Goals	Strategic Initiatives
Use of IT Resources	Do IT Right The Right People Fiscal Responsibility	
Centralization vs. Decentralization	Do IT Right Fiscal Responsibility	
Data Management	Do IT Right Move Forward Together Do IT Safely	
People Management	Do IT Right Move Forward Together The Right People	
Enterprise Perspective	Customer Focus Move Forward Together The Right People Do IT Safely Fiscal Responsibility	
Business Processes	Do IT Right Fiscal Responsibility	



Large-Scale Aerial Photography of the State Capitol

Aerial imagery is a key component of the Montana Spatial Data Infrastructure.

Data courtesy of Lewis & Clark City/County Geographic Information Services Department

STRATEGIC INITIATIVES

The following Strategic Initiatives are composed of IT projects, processes and methodologies that will be used by the State to achieve its IT Vision. These initiatives are enterprise-wide strategies to reach multiple statewide goals. They are also designed to address the IT issues described earlier in the Plan. These Strategic Initiatives set the direction for managing information technology for the State of Montana.

ENTERPRISE ARCHITECTURE

Enterprise Architecture (EA) is a method for managing a business or enterprise that has become more popular in the United States over the last five years. It is a decision-making tool for managing change and complexity within an enterprise and becomes the knowledge base of the enterprise.

Information technology is a small portion of Enterprise Architecture, but is very important to IT professionals. Enterprise Architecture is about making sure IT systems are meeting the business needs of the State, and it also establishes a method to manage change and complexity within the State.

Why do Enterprise Architecture?

In the Information Age…

- How do you manage the increasing complexity of your enterprise?
- How do you manage the increasing rate of change?
- How do you meet the demands of your customers quicker and more efficiently?
- Can you predict the full impact and cost of a change in your enterprise today?
- Do your current complexity and change management tools work for you?
- When someone leaves your enterprise, do you retain his or her knowledge?

The State of Montana is evaluating Enterprise Architecture frameworks as the classification system for this initiative. These frameworks apply physics and basic engineering principals to the enterprise as a whole. It has a defined set of rules to follow for successful implementation of both IT systems and manual systems within the enterprise.

The goal of Enterprise Architecture is to be able to isolate a change in the enterprise and estimate the impact of that change. It also provides a tool for managing the change for optimal success. It is a model to help produce rational solutions for very complex enterprise problems.

Implementation of the Enterprise Architecture initiative centers largely on education of what Enterprise Architecture is and how it provides invaluable assistance to agency program owners. The investment of time necessary to create the architectural blueprints easily pays off in the valuable information they provide for managing change in this fast paced world of technology.

E-GOVERNMENT

The electronic government (e-Government) initiative for Montana state government is now several years old and we have gained valuable experience in providing e-Government services to customers. Our service offerings have been a great success and are truly making a difference to businesses and citizens in our state and across the nation. The increasing number of e-Government services is raising customer satisfaction and improving government efficiency.

e-Government benefits the State and our customers by:

- Lowering the cost of government operations by automating routine processes, reducing paperwork and eliminating manual tasks.

- Allowing the public to pay fees and taxes; and to obtain permits, licenses and forms from their home or office 24 hours a day, 7 days a week.
- Promoting economic development by permitting online document searches and filings, tax and wage reporting, filing workers' compensation claims and one-stop regulatory submissions.
- Fostering tourism by providing detailed, quality information to potential visitors
- Delivering superior service to citizens and businesses through convenience, time savings, accessibility, and quality and completeness of information.

DiscoveringMontana.com, the State's official website, is the cornerstone of our e-Government initiative for businesses and citizens. In 2006, the branding of *DiscoveringMontana.com* is scheduled to change, but its purpose will remain the same. The Montana Information Network for Employees (MINE), the State's official intranet, is the focal point for providing e-Government services for employees.

A goal of this initiative is to encourage and assist those agencies that have not yet participated in providing e-Government services to become involved. All agencies can benefit from providing e-Government services to their customers either externally on *DiscoveringMontana.com*, internally on MINE, or through an extranet. While not all services lend themselves to automation, there are services in each agency that do.

A second goal of this initiative is to continue developing and enhancing the centralized infrastructure for e-Government services. This includes the hardware and software that supports the infrastructure and making sure it all fits well within the State's architecture. It also includes the State's central payment portal for accepting and transferring electronic funds, the single login to *DiscoveringMontana.com* and the single sign-in to MINE. The e-Government Service Certification standard ensures the State's services all have a common look and feel so they are instantly recognizable and easy to follow by customers. When a customer does need assistance, there is a single help desk and method for them to receive help regardless of the agency providing the service.

Marketing the State's e-Government services is an ongoing effort and will always be a key goal of this initiative. We have established a specific marketing plan for each individual service, plans around groups of services, and a plan for *DiscoveringMontana.com* as a portal and gateway to all e-Government services. Usage statistics and services continue to grow at a steady rate.

The Electronic Government Advisory Council is an invaluable part of this initiative, advising the Department of Administration as they lead these activities. The council's insight and guidance are crucial for keeping this initiative on track. The support and enthusiasm of Montana's business community has also played a large part in the success of state e-Government.

Montana state government will continue to increase the number of e-Government services offered and encourage participation by all agencies. We will focus on providing state employee services for the improved efficiency and productivity of state government.

IMPLEMENTATION OF BEST PRACTICES

The Montana Information Technology Act clearly recognizes the importance of IT in Montana state government and sets the criteria for this initiative:

". . . the Legislature finds that information technology is becoming a critical component. . . in providing information and services to Montana citizens; and. . .the cost for information technology is increasing both in absolute and relative terms in agency budgets; and . . . information technology, . . . must be carefully managed and coordinated throughout state agencies."

Best practices are the tools that "carefully manage" IT efficiently and effectively. These tools and techniques have been developed and tested over the past 50 years. Best practices consist of processes and practices that have repeatedly demonstrated a positive return on investment from a financial, customer satisfaction, risk and value perspective.

Implementation of best practices requires a financial and resource commitment. Some best practices need to be adapted to our specific

environment. The following areas have been identified as requiring best practice methodologies:

- Project management methodologies including Independent Verification and Validation (IV&V)
- System Development Life Cycle (SDLC) methodologies including testing and quality assurance
- Operations management and support including a specific focus on change control and management
- Aligning strategic and fiscally responsible IT investments with the agency business plans
- Continuous strategic planning

The application of best practices is not a short-term exercise. It requires long-term dedicated attention and continuous effort to realize a return on investment. The commitment to implement best practices is the responsibility of state leadership, state IT professionals and the IT vendor community.

Through implementation and maintenance of the best practices initiative, the State will perform rigorous due diligence and risk assessment in building the true business case for IT investments. Through the use of standard contracts and statements of work, we will reduce risk and establish a sound contractual and management foundation for system related purchases. The appropriate project management and SDLC methodologies will be applied to professionally manage IT projects.

Skilled IT staff operating in productive environments will be supported by appropriate tools and training. Projects will be tracked and reported using common tools and measurement criteria. IV&V oversight will ensure best practices are being applied. Problem projects will be identified early and addressed using a certification process to allow timely intervention and correction processes.

Strategy: Implement Project Management Disciplines

Project management is one of the key focus areas of the Strategic Plan. Project management methodologies have been evolving since the 1950s, and their benefits have been proven repeatedly. Montana must make the investment in these methodologies before it can reap the benefits of on-time, on-budget, full function projects. IT projects will have trained project managers whose experience matches a project's scope and risk.

Large, high-risk projects will be subject to independent validation and verification. The State will employ structured methodologies to manage a project's entire life cycle, including system development, testing and quality assurance. Project reviews at the conclusion of projects will highlight lessons learned and build an archive of project knowledge.

Strategy: Implementation of a Project Management Office

ITSD's Project Management Office (PMO) will be the organization charged with directly supporting agency IT projects through the application of standard processes, procedures, tools and techniques. The PMO will be reviewing projects at their initial stages to ensure that appropriately skilled project managers are assigned. The PMO has the responsibility for conducting appropriate project management oversight. The PMO supplies a structure for reporting, performance monitoring and review. Project managers will be able to share experiences and lessons learned through forums arranged by the PMO.

Strategy: Continuous Strategic Planning

We plan to practice what we preach by approaching strategic planning as a process, not an event that ends with the publication of this document. Our objective will be a constantly evolving strategic plan that incorporates the results of future research and planning. The first step will be a review of the agency strategic IT plans to insure the State Strategic Plan did not overlook key agency issues. The second step will be to evaluate our current position by completing an IT

infrastructure survey on IT staffing and skills, systems, software and applications. This will give us a snapshot of our baseline position. Understanding our current IT position is analogous to the survey work, soil testing and environmental work that precede road construction. Our baseline will also enable us to compare Montana to our peer states and highlight where we need to make improvements. This base of knowledge will be the starting point for detailed studies in the following areas:

- Centralization/Decentralization: Research will focus on the best structure for Montana's applications, systems and IT organizational structure.
- Outsource/Insource: Work will center on which services and systems should be handled internally and which should be contracted to outside organizations.
- Staff augmentation: Analysis will study the use of external contractors to augment State IT staff.
- Workforce development: Our research will focus on the skills necessary to support our future IT operations, the training required to prepare our staff, succession planning and recruitment and retention programs.

Modifications to the Strategic Plan, IT standards, processes and policies will originate from the studies' recommendations and conclusions. Another source of Strategic Plan modifications will be the IT Biennial Report to be issued in January 2005.

BUSINESS PROCESS MANAGEMENT

Technology should be driven by business needs. We should not apply the latest available technology on business processes that have become old and antiquated. For this reason, the business requirements have to be accurate, clear and documented.

Business Process Management (BPM) is a concept that many businesses and state governments are using as part of their best practices approach to managing large IT projects. BPM usually consists of two major phases: (1) Business Process Reengineering (BPR) and (2) Continuous Improvement Process (CIP).

BPR is the process of documenting ways things are done now, the ways things could be done, and a plan for getting from the current to the proposed. CIP calls for continuously examining the business processes to determine whether or not changes are needed.

The benefits of conducting BPM can be enormous. For example, the Montana Department of Justice (DOJ) went from a 53-day backlog on processing vehicle titles to no backlog by simply changing their business practices. This was accomplished with only minor system changes. Of course, dramatically changing business practices usually means having to change attitudes and institutional culture. At the DOJ, the thought of changing was unnerving and caused some insecure feelings among several longstanding employees. Management overcame this through open and honest communication. They were sensitive to the human elements and provided effective leadership.

BPR goes beyond just automating the current steps involved in processing forms. BPR also allows modeling and simulation of a business process. It analyzes paperwork flow and monitors performance identifying areas where the process can be improved.

In 2003 a multi-agency team issued a report recommending a specific software tool for implementing BPM. Additional recommendations are incorporated in the strategies below.

Workflow

Workflow is "the automation of a business process, in whole or in part, during which documents, information, or tasks are passed from one participant to another for action, according to a set of procedural rules." A classic workflow example is the routing of forms or documents to a series of

people for review, approval and eventual automatic filing. Workflow continues to offer a strategic opportunity for the State of Montana. Workflow offers the ability to make large reductions in time required to handle documents. Montana's citizens and businesses get far faster service.

Strategy: Workflow Enterprise Approach

Montana has taken an enterprise approach to providing all agencies with access to imaging and workflow tools and systems. ITSD is the sponsor of a document archive/retrieval and workflow system. By funding this component of the infrastructure at the enterprise level, imaging and workflow benefits are available to smaller agencies that normally could never afford or justify the large start-up costs.

Strategy: BPM implementation

BPM will be implemented using a staged approach that begins with the proof of concept and pilot projects using the FileNet system. There may be some exceptions where other standard State products and applications could be a better fit than FileNet. Enterprise implementation will depend upon staff and training levels, budgets, and FileNet's acceptance as a State standard.

Strategy: Large IT Projects BPM

The potential benefits of Business Process Management are real. As part of the best practices approach to achieving successful IT projects, ITSD's Project Management Office will develop requirements for conducting large-scale BPM projects.

WORKFORCE DEVELOPMENT

Enterprise-wide IT excellence begins with excellent employees, and superior IT support demands constant evaluation and re-evaluation of both people and technologies. Studies accomplished by various state agencies and data reflected in recent articles from the trade press indicate an ever-increasing gap between available IT skills and advancements in technology. The State of Montana is also approaching a crisis in the form of retiring IT workers. Currently 60% of the total state IT managers and 27% of the IT technical staff are eligible to retire, retire early, or are projected to leave their present positions within the next five years. Although turnover is approximately 7% annually today, it is expected to grow dramatically.

The State is poorly prepared to meet these challenges. We do not have a methodology to assess the technical competencies required to meet the needs of rapidly changing technologies. As technologies change, the people who work with those technologies need to be given the motivation, opportunity, funding and tools to change with the technologies. We also have no plans to handle the upcoming succession problem of retiring employees.

The workforce development strategic initiative is designed to address these gaps. In support of the goal of The Right People, the State will implement new methodologies to expand employee competencies using established, best practice, career development principles. Key components for creating and maintaining employee excellence are well defined IT career paths and well-understood skill sets. The workforce development strategic initiative has four main strategies: recruiting and retention, succession planning, training and a pilot program at the Montana Department of Transportation.

Strategy: Recruitment and Retention

The first step to adequate IT staffing is to ensure the State can attract and retain its highly skilled employees. It will be necessary to compare our current business practices, benefits and compensation relative to our competitors for IT talent. We need to understand how we compare to other employers and what steps are necessary to keep us competitive.

Strategy: Succession Planning

This strategy will focus on preparing State organizations for the departure of significant numbers of key employees. Agencies will need to investigate and forecast their future turnover, including the potential for large numbers of retirees. They also need a plan to prepare for the replacement of key staff. This may include training for current staff to prepare them to assume a departing employee's duties or special assignments to prepare someone for a promotion.

Strategy: Training

The strategy of focusing on training is not a new concept. Many IT organizations have a fixed objective of 10 full days of annual training. This two-week objective is a common industry standard which goes back over 20 years. We do not currently have such an objective because we do not fully understand our current skills requirements. Instead, our objective will be a comprehensive review of our current position and skills requirements for the next several years. Management will be part of the program as well as technical staff. IT managers require an understanding of new technologies, personnel management and business management just as much as technical staff need the latest software and hardware skills.

Strategy: Pilot Program at Montana Department of Transportation

The ITSD is monitoring a Montana Department of Transportation (MDT) IT Excellence pilot program that addresses the following items for possible future inclusion into a statewide program:

1. Evaluating needed IT skills and tools
2. Assessing the current skills of the MDT Information Services Division staff
3. Assessing current and future technologies
4. Identifying gaps between technology and skills
5. Documenting opportunities for staff development
6. Identifying requirements for special skills
7. Developing standardized guidelines for IT hiring, competency evaluation, growth, retention, succession planning and a State IT certification program.
8. Creating a professional IT workforce through training, knowledge sharing, and vertical and lateral career ladders to support the department's vision of IT excellence This pilot program will culminate in an IT excellence and career development model, which potentially could be expanded into a statewide program

Attracting and keeping excellent IT staff cannot be accomplished with halfhearted measures. We could easily lose our best IT talent during a bull market and expanding Montana economy.

PUBLIC SAFETY COMMUNICATIONS

The State is required to take a leadership role with regard to planning for public safety communications systems used by state, local and federal entities in Montana. Implementing standards and interoperable systems are objectives that need to be met in all public safety projects for improved emergency response to the public.

Our objective is to develop an interoperable multimode radio communications system based on national standards in which federal, state, local and military representatives can operate autonomously and transition seamlessly to communicate effectively in emergency mission roles. We also need to upgrade the existing technology of land mobile radio systems in order to conserve spectrum resources and reduce participating agency costs.

Concept Demonstration Projects began in 2003. Project teams are developing statewide implementation plans using a phased approach. Additional phases will be prioritized based on funding availability and federal narrowband mandates.

Wireless E9-1-1 is critical to the State of Montana and emergency services. This service will enable emergency services to respond quicker by providing the dispatcher with critical location information for a caller on a wireless phone. There are three phases in which Wireless E9-1-1 can be deployed. The final phase will allow the call-taker to receive both the caller's wireless phone number and their location information.

In addition, location and mapping information is being collected on State owned buildings to allow for quicker response in case of emergencies. An Emergency Preparedness Network (EPN) will target emergency notification service specifically to deliver warnings and critical safety instructions to designated geographic emergency areas.

The State of Montana Public Safety Services Office (PSSO) has aggressively pursued and received federal funding. The statewide E9-1-1 solution will provide a turnkey E9-1-1 network, emergency notification service, database services, customer premise equipment (CPE), maintenance, monitoring/training and Phase II Wireless E9-1-1 readiness.

ENTERPRISE CONTENT MANAGEMENT

Historically organizations have limited their perspective of *information* to traditional data. Other forms of information have made inroads into that perspective but usually from the data management aspect. Organizations are coming to realize that information exists in a wide variety of forms throughout the enterprise such as hardcopy documents, computer reports, email, electronic documents, forms, graphic images, video, sound files and web pages. The term *Enterprise Content* has been coined to describe these information assets.

Enterprise Content comes with fundamental management challenges: security, storage, disposal and integrating the various forms of content to maximize benefit to the organization. Managing content is very complex, compounded by the fact that the volume of content is growing rapidly. Balanced against the challenges of content management is the reality that State customers are looking for Internet access to the documents, files and data supporting their applications, permits, legal processes and inquiries.

More and more, important documents are being created, stored, and archived only in electronic format. It is vital that we be able to access (read and print) these documents for many years into the future, regardless of the tools that were used to create them. In this age of rapidly changing storage technologies and software versions, how do we ensure access to documents created years earlier with technologies that are now obsolete?

At the present time, the State does not have a comprehensive strategy for managing enterprise content. Our initial plan includes an industry leading document and workflow system, a strategy of anchor tenancy and a proposed web content

management standard; but we do not have a consistent enterprise-wide approach dealing with the legal, business and technical issues. A consistent approach is necessary for:

- Document retention periods
- Defining public vs. private documents
- Electronic signatures
- Content classification methodologies (i.e. taxonomy)
- Continuous migration of content to current technology and media

Our first step to dealing with content management will be to form a task force to begin the research and strategy work. The task force should be made up of business and technical leaders across several agencies. The legislature and IT governance boards should also be represented.

The task force will be charged with identifying our most critical needs and immediate risks, researching other states/government approaches and strategies, and evaluating strategies that might be best for Montana. The mission of the task force will be a comprehensive report and recommendations that we can build upon. The task force's work will be the initial step in customizing our content management strategic initiative.

These Strategic Initiatives complete the roadmap and set the direction for future technology for the State of Montana.

IT Issue	Goals	Strategic Initiatives
Use of IT Resources	Do IT Right The Right People Fiscal Responsibility	Best Practices
Centralization vs. Decentralization	Do IT Right Fiscal Responsibility	Best Practices e-Government
Data Management	Do IT Right Move Forward Together Do IT Safely	Enterprise Architecture e-Government Enterprise Content Management Public Safety Communications
People Management	Do IT Right Move Forward Together The Right People	Enterprise Architecture Enterprise Content Management Workforce Development Best Practices
Enterprise Perspective	Customer Focus Move Forward Together The Right People Do IT Safely Fiscal Responsibility	Enterprise Content Management Enterprise Architecture Public Safety Communications e-Government Best Practices Workforce Development
Business Processes	Do IT Right Fiscal Responsibility	Enterprise Architecture BPM

STRATEGIC PLAN IMPLEMENTATION

COORDINATION OF STRATEGIC PLANNING

The Strategic Plan for IT is designed to give direction for the planning done by the individual agencies. Agency strategic IT plans must be complementary to the State Strategic Plan. Shortly after the Strategic Plan for IT is published, the agencies will complete their agency IT plans. These agency IT plans will be developed based on agency business plans and strategies, as well as the State Strategic Plan for IT. The State Plan for IT is based heavily on direction coming from the Information Technology Board and the Information Technology Managers Council. Coordination of all IT strategic plans is integral to the process.

DAILY USE OF THE PLAN

The Strategic Plan for IT is embodied in the activities and processes that occur throughout the year. The Montana Information Technology Act is the primary vehicle that ensures the Strategic Plan for IT is utilized on a daily basis.

When agencies and IT organizations conceive of new IT projects, the objectives of the projects and the system designs are measured against the Strategic Plan for IT and the agencies' IT plans. The proposed projects are documented in Agency IT Procurement Requests (ITPR), which are reviewed against the State and agency plans, product standards, and procurement standards by the Policy and Planning Services Bureau. We estimate that more than 600 ITPRs will be reviewed in fiscal 2004.

On a biennial basis the agencies and ITSD compile a status report. The purpose of the report is to inventory the State IT resources (personnel, equipment, software); analyze the value, condition and capacity of the State infrastructure; evaluate the performance of the State IT systems; and assess progress in implementing the Strategic Plan for IT.

SUCCESS FACTORS/CHALLENGES

Achieving the objectives of the Strategic Plan for IT is a multi-year process that will proceed by incremental steps. As specific goals are reached, old goals will be modified and new goals will be added. The Strategic Plan for IT needs to evolve and change as Montana's needs change.

Success depends on the active involvement of all parties, including the Legislature, the Governor, IT governance boards, department and agency senior management, and all State IT managers and staff.

We have multiple challenges with funding, staffing, technical skills and learning/implementing best practices. But we should not overlook cross-departmental cooperation and coordination. Our greatest challenge may be the disruption from contention over control. Just as our country struggled to find a workable midpoint between state and federal control prior to the adoption of the Constitution, agencies and ITSD must find their equilibrium point for control.

ACKNOWLEDGEMENTS

Without the cooperation, guidance, and valuable contributions of the members of the Information Technology Board (ITB) *http://www.discoveringmontana.com/itsd/policy/councils/itb/members.asp* and the Information Technology Managers Committee (ITMC) *http://www.discoveringmontana.com/itsd/ policy councils/itmc/members.asp* we would not have been able to successfully develop this plan. These two governance groups devoted numerous meetings and many hours of discussion to providing valuable perspective.

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STATUTORY REFERENCES

The following excerpts from the Montana Information Technology Act provide the background and expectations for the State of Montana Strategic Plan for Information Technology.

GUIDING POLICY

The Act established guiding policies for state government to follow when using information technology in its operations:

- Information technology is used to improve quality of life for citizens
- The development of information technology resources must be organized, deliberate and cost-effective
- The Department of Administration must be accountable to the governor, legislature and the citizens

The Act provides guiding principles for use by state government to ensure the second policy is achievable.

Section 2-17-505, MCA

INFORMATION TECHNOLOGY BOARD

The Act created an Information Technology Board, with expanded membership that replaced the Information Technology Advisory Council. The Board is to advise the Department of Administration on key IT issues, provide a forum to guide the development and deployment of information technology in the state, and to share information. In addition, the Board shall study state government's present and future IT needs and the use of emerging technologies.

Section 2-17-513, MCA

IT PLANNING

The Act requires the Department of Administration to develop and implement a statewide strategic IT plan and requires individual agency IT plans. These plans are submitted to the Department of Administration for approval and alignment with the State Strategic Plan for IT. The IT plans must also align with the biennial budget process. Agency requests for funding of major IT projects must be included in their IT plans.

Sections 2-17-521 through 2-17-526, MCA

MONITORING & ENFORCEMENT

The Act defines the Department of Administration duties and responsibilities associated with the new IT planning and budgeting requirements. The department shall:

- Assess progress toward implementing the State Strategic IT Plan
- Establish and enforce statewide IT policies and standards
- Evaluate IT budget requests with OBPP

- Report on IT that is based on the agency plans
- Evaluate performance relating to information technology.

The Office of Budget & Program Planning (OBPP), in cooperation with the department, shall prepare a statewide summary of major new IT projects contained in the state budget. The Legislative Finance Committee (LFC) provides interim oversight for information technology. The Department of Administration shall report to the LFC on a regular basis and to the legislature on the IT activities of the department.

Sections 2-17-512, 2-17-514 and 2-17-526, MCA

BIENNIAL REPORT

The Act requires the Department of Administration to prepare a biennial report on agency IT plans and performance reports and other information considered appropriate by the Department. The biennial report must include an analysis of the State's IT infrastructure, including its value, condition, and capacity; an evaluation of performance relating to IT; an assessment of progress made toward implementing the State Strategic IT Plan; an inventory of State information services, equipment, and proprietary software; agency budget requests for major projects; and other information as determined by the Department, Governor or the Legislature.

Section 2-17-521 MCA

APPLICABILITY

The Act includes provisions indicating what entities must comply with the provisions of the Act. Generally, the Act applies to every agency of the Executive Branch of government. The Act does require the Legislative and Judicial Branches to prepare an information technology plan and provide their IT plan to the Department of Administration. Certain entities are granted exemptions from certain provisions of the Act. The National Guard is exempt from most provisions of the Act. Additionally, the Montana University System and the Office of Public Instruction are granted exemption from the procurement review and approval process in the Act unless the proposed activities would detrimentally affect the operation of the central computer center or the statewide telecommunications network. In addition, the department may grant exceptions to any policy, standard, or other requirement adopted by the department.

Sections 2-17-515 through 2-17-517, MCA

GLOSSARY

A common problem in the IT industry is the proliferation of terminology and lack of consistency and standardization. The definition of a particular term is often dependent upon the context and the technical environment where it is used. This glossary has been included to ensure that all readers understand the terms used in this document.

Anchor Tenant	A large consumer (e.g., the state) of technology services that, through its size and commitment to procure services, provides incentive to the private sector to invest in technologies that can then be used by others (e.g., citizens, businesses, other government entities, etc.).
Balanced Scorecard	A methodology for rating business projects based on several factors such as financial returns, customer service, alignment with the firm's strategy, innovation, growth, and improvement to business processes.
Branding	Identifying symbols, words or marks that distinguishes a product or company from its competitors.
Best Practices	An implemented practice that has been shown to perform optimally through time. As processes and procedures are defined and implemented, patterns can be seen that show the best process and procedure for a business unit, functional area, or type of functionality.
Business Case	A structured proposal for a business project that supplies information to decision makers. A business case usually includes an analysis of business process performance and associated needs or problems, proposed alternative solutions, assumptions, constraints and a cost-benefit analysis.
Business Continuity	The sustaining of normal business operations during both expected and unexpected events that would otherwise impair the normal functioning of the state. This involves around-the-clock ability to recover from both manmade and natural disasters and includes assets beyond information technology such as facilities, personnel, critical knowledge, and physical information.
Business Function	A logically related series of activities which, taken together, represent the primary responsibility of a single business unit.
Business Process	The manual or automated process steps that are performed in order to accomplish a government service. Example: In producing payroll checks an organization must collect employee timesheets, verify timesheets, run pre-payroll reports, run payroll check runs, and sign payroll checks.
Business Process Reengineering (BPR)	BPR is the process of documenting current business processes, proposed new business processes, and a plan for getting from the current to the proposed process.
Change Management	Management processes set up to ensure that all software or hardware changes made to IT systems have been done in accordance with predefined guidelines. These guidelines are put in place to reduce the risk of introducing unexpected errors or system downtime.

Continuous Improvement Process (CIP)	The process of continuously examining business processes to determine whether or not changes are needed.
Customer	Citizens, businesses, federal, local, and tribal governments, and other organizations and stakeholders that utilize Montana state services.
E-Commerce	Business transactions that are conducted via the Internet or other electronic media.
Economies Of Scale	The concept of increasing efficiencies of operation as the size of the operation increases. This is due to fixed costs being spread over a larger base.
E-Government	The provision of government services via computer or Internet-based technology.
Enterprise	All agencies of the state, including the University system and participating local government and educational entities, working collaboratively to use, share, and leverage the investments made in information technology. To this end, agencies of the state and participating entities share systems and networks, use standard software and hardware, and train employees in common techniques.
Enterprise Security	Integrated, enterprise-wide protection of IT assets, data, and resources. This includes accessibility, privacy, data integrity, and accuracy of information. It also includes the availability of resources entrusted to government by its customers.
Gap Analysis	A methodology for comparing existing system capabilities against potential security threats.
Information	Artifacts such as data, images, knowledge, documents, etc. that are found in both physical and electronic form.
Information Technology	Technology, typically in the form of computers, software, networks, telecommunications, electronic storage, etc., that enables the storage, communication, manipulation, and access to information.
Interactive Voice Response System	A function whereby callers push buttons in response to voice prompts in order to listen to recorded information, or have their calls automatically routed to an appropriate party.
Internet	A worldwide collection of interconnected computer networks that communicate via telephone lines, high-speed data lines, and wireless technology. The Internet provides the ability for companies, organizations, individuals, and schools to share information.
IT Infrastructure	All information technology hardware and software that cumulatively provides a common foundation of equipment and applications that is shared among all entities of the enterprise. Examples: network hardware/software, LAN/WAN, mainframe and mid-tier computer equipment, storage devices, security hardware/software, etc.
Outsourcing	Relying upon a non-State entity to supply services, products and support.
Post Implementation Reviews	Structured sessions involving members of an IT system development team and used to assess positive and negative outcomes from a development effort. These are used to discuss lessons learned and help encourage improvements in development processes on future projects.
Privacy	The right of individuals to keep information pertaining to themselves from being given out to other individuals and businesses.

Quality Assurance Practices	Activities and processes that are implemented in order to ensure IT system conformance to expected requirements, standards, and characteristics.
Security	Measures taken to guard against unauthorized access or use of information and equipment.
Service(S)	A function that provides access to public information, enables business activity, and addresses the needs of state customers.
Shared Information	Common electronic information of separate state government organizations that is stored and maintained using common IT assets in order to provide optimum customer service. This sharing includes the actual information artifacts such as data, images, documents, etc., and can also encompass the methods or mechanisms needed to create, store, and retrieve the information.
Staff Augmentation	The use of non-State contractors to perform IT staff functions that would normally be performed by State employees if the agency had the ability to hire.
State	All government officials, agencies, and organizations that together work to serve state government interests.
Stewardship	The careful management of something placed in one's care.
Strategic Initiatives	Strategic Initiatives are composed of IT projects, processes and methodologies that will be used by the State to achieve its IT Vision. These initiatives are enterprise-wide strategies to reach multiple statewide goals.
Strategies	Measurable activities to be performed for the purpose of attaining the goals defined in the Strategic Plan for IT.
SummitNet	The State of Montana's high-speed digital data communications network. The next generation of SummitNet will completely integrate voice, video, and data transmission services around the state.
Vision	Ideas, concepts, and themes that provide a common ground for the development and implementation of the Strategic Plan for IT.
Wireless	The connection of electronic devices through the use of radio waves, without the use of wires. This typically refers to communications using telephones or computer devices.